

CORRELATION OF MAP UNITS

| | | |
|------|------|---|
| Qa | Qb | QUATERNARY AND (OR) TERTIARY |
| QTa | QTb | |
| Ta | Tb | TERTIARY |
| Yd | XWp | MIDDLE PROTEROZOIC EARLY PROTEROZOIC AND (OR) LATE ARCHEAN |
| Wg | | |
| Wwam | Wwcu | LATE OR MIDDLE ARCHEAN |
| Wwca | | |
| Wwca | Wwca | MIDDLE (?) AND EARLY (?) ARCHEAN |
| Vlgs | Vlgs | |

DESCRIPTION OF MAP UNITS

Sand and gravel (Quaternary)—Unconsolidated to poorly consolidated

Alluvial stream deposits

Basin fill—Mostly in upper reaches of Sweetwater Creek

Siliceous fault line deposits (Quaternary and (or) Tertiary)—Liasperid along Carter Creek fault, siltified breccia along Stone Creek fault

Pediment gravel and debris (Quaternary) and siltstone, sandstone, and conglomerate (Tertiary)

Basalt (Tertiary)—Remnants of valley flows, in part equivalent to basalt a few miles east of map area yielding K-Ar age of about 4 m.y. (Pliocene)

Diabase (Middle Proterozoic)—Narrow dikes, most along fractures related to northwest-trending faults. Undeformed but slightly altered. Rb-Sr age about 1,425 m.y.

Pegmatite (Early Proterozoic?) and (or) Late Archean)

Small bodies—Undeformed, tourmaline-bearing, many rhyolitically zoned, having quartz core. Not separately distinguished in all parts of map area. Probably Early Proterozoic in age

Sheets and dikes—Abundant; composed mostly of coarse-grained alkali feldspar and quartz, commonly fractured but rarely foliated. Mostly Late Archean in age

Granite gneiss (Late Archean)—Massive to foliated, locally mylonitic. In part igneous intrusive, in part product of granulization of pre-existing pelitic strata. Not physically distinguishable from some phases of older quartzofeldspathic gneiss. Age about 2,750 m.y.

Amphibolite (Late or Middle Archean)—Foliated sheet-like bodies composed mostly of hornblende and plagioclase, some garnetiferous. Mostly mafic sills initially, of two or more ages. Some small bodies may be metavolcanic or derived from metametamorphic diopside gneiss by retrograde metamorphism

Ultramafic rocks (Late or Middle Archean)—Small plutons in south-central part of map area, pods and lenses elsewhere. Bodies too small to be shown at map scale indicated by cross

Christensen Ranch Metasedimentary Suite (Late or Middle Archean)—Divided on basis of lithologic units (not a stratigraphic sequence)

Quartzite—Thin beds of orthoquartzite, mostly white to yellow, locally greenish

Iron-formation—Alternating thin layers of mostly magnetite and quartz, commonly contorted. Beds that are too thin to be shown at map scale are indicated by solid red line

Marble—Medium- to coarse-grained, generally dolomitic and containing variable amounts of diopside, tremolite, serpentine, phlogopite. Host rock for widely distributed deposits of talc

Undifferentiated metasedimentary rocks—Includes quartz-mica schist, sillimanite schist, tremolite, phlogopite, and anthophyllite schist; diopside and epidote gneiss; small bodies of amphibolite and granitic gneiss

Quartzofeldspathic gneiss (Late or Middle Archean)—Mostly massive to well-foliated reddish-brown granitic gneiss, in part garnetiferous, locally containing thin lenses and layers of amphibolite. Encloses tectonic slices and infolds of Christensen Ranch metasedimentary strata, mostly marble. Polygenetic in origin, in part igneous, in part metasedimentary

Older gneiss and schist (Middle?) and Early (?) Archean)—Layered biotite-hornblende-garnet gneiss, augen gneiss, migmatite, Corundum-bearing schist and anthophyllite schist; in sec. 20, T. 8 S., R. 6 W. Age uncertain but assumed to be older than quartzofeldspathic gneiss unit (Wwag)

Contact—Dashed where approximately located or inferred. Some contacts mark surfaces of tectonic dislocation

Fault—Dashed where approximately located or inferred; dotted where concealed

Strike and dip of layering in metasedimentary rocks

Vertical

Inclined

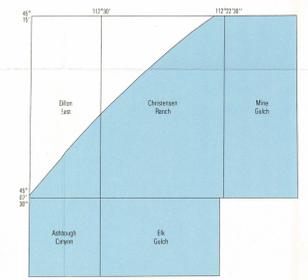
Strike and dip of foliation

Vertical

Inclined

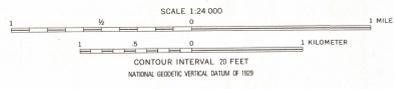
Bearing and plunge of lineation (rodding, minor fold axis, mineral elongation)—May be combined with strike and dip symbol

Compiled by H. I. James, mostly from published maps by James and others (1983), James and Blair (1972), Henrich (1963), and Gehlen (1979)



INDEX SHOWING MAP AREA (BLUE) LOCATED WITH RESPECT TO 1:24,000-SCALE TOPOGRAPHIC BASE MAPS

Base from U.S. Geological Survey, Abingdon Canyon, Christensen Ranch, Dillon East, Ek Gulch, Mine Gulch, 1981



GEOLOGIC MAP OF THE SOUTHWESTERN RUBY RANGE, MONTANA